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The Second Best Thing About Payday
60TH ANNIVERSARY ISSUE

nih record

ABOVE • *NIGMS's Dr. Irene Eckstrand (l) explains "Bones and Evolution" to a visiting child. See story below.*

features

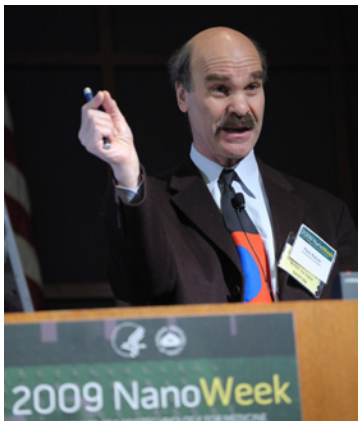
departments

Week-Long Event Builds Excitement

Just Past Infancy, Nanomedicine Takes 1st Steps at NIH

By Carla Garnett

Like any 6-year-old, nanomedicine is just in primary school, learning its way in the world. And like any proud parent, NIH was raring to show what its offspring could already do. That was one of the main ideas behind the recent NIH NanoWeek 2009: Bring together some of nanotechnology's early adopters. Share lessons learned. Point out pitfalls. Plan next steps. Network. Build teams.



Dr. Mark Ratner of Northwestern University gives lead-off NanoWeek lecture.

"Nanomedicine is not yet in vogue right now," said Dr. Kuan Wang, chief of NIAMS's Laboratory of Muscle Biology and one of the event's organizers. "It really did not exist. NIH is building its own brand of science. This is as creative as, say, Apple's inventing the iPod for the music community. What we are doing with NanoWeek is using the chance to promote a much closer community with other fields of science like engineering and with other institutions like NIST. Interaction can be a lot more in-depth. Nanomedicine is going to have to involve every-

SEE **NANOWEEK,** PAGE 6

NIH Responds to H1N1 Flu Outbreak

By Belle Waring

All agencies in the Department of Health and Human Services, NIH among them, are working to investigate, monitor and slow the spread of the 2009 H1N1 influenza outbreak, as well as to provide information to public health officials, health care providers and citizens.

The outbreak is caused by a new flu virus to which most people will not have immunity. The Centers for Disease Control and Prevention and the World Health Organization confirm a growing number of human infections, hospitalizations and deaths in the U.S. and internationally.

NIAID director Dr. Anthony Fauci recently testified at several Capitol Hill hearings regarding NIH's role in the outbreak. He said that while the initial course of developing a vaccine has begun, the process will take time.

Meanwhile, NIAID and the Clinical Center are intensely involved in coordinating NIH's

SEE **FLU OUTBREAK,** PAGE 4

Sisters Ashley (l) and Danielle Rizak, both 8, show off their newly painted faces, an Earth Day perk that drew many children. Their mother, Katie Rizak, works at NINR.

NIH'ers Take Kids to Work, Earth Day

Both the planet and parents/guardians were most obliging during the 15th annual NIH Take Your Child to Work Day, which was paired Apr. 23 with Earth Day events on the lawn of Bldg. 1. The campus hosted some 2,827 children who registered on a sunny, breezy day. This year, for the first time, every institute and center held activities. Goody

SEE **KIDS AT WORK,** PAGE 8

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nih record

briefs

NCI's Lowy Elected To NAS

Dr. Douglas R. Lowy, deputy director of NCI's Center for Cancer Research, is one of 72 new members and 18 foreign associates from 15 countries elected to the National Academy of Sciences in recognition of distinguished and continuing achievements in original research.

The election was held Apr. 28 during the business session of the 146th annual meeting of the academy. NAS is a private organization of scientists and engineers dedicated to the furtherance of science and its use for the general welfare. It was established in 1863 by a congressional act of incorporation signed by Abraham Lincoln that calls on the academy to act as an official adviser to the federal government, upon request, in any matter of science or technology.

eOPF Offers New, Helpful Features

The eOPF (electronic Official Personnel Folder) is upgrading to version 4.1 in mid-May. All NIH staff will now have available the new WhoAmI? feature, which enables a read-only view of key information. It allows you to validate your eOPF profile data to assist the help desk in trouble-shooting.

A few other updates have been added, including a link to the Rules of Behavior and a session time-out notification that appears after 15 minutes of inactivity. eOPF has enhanced print functionality too. For the latest information on eOPF, visit http://hr.od.nih.gov/HRSystems/eOPF/default.htm.

Wednesday Afternoon Lectures

The Wednesday Afternoon Lecture Series—held on its namesake day at 3 p.m. in Masur Auditorium, Bldg. 10—features Dr. Tom Rapoport, professor of cell biology, Harvard Medical School, on May 20, speaking on "Mechanisms of Protein Translocation Across Membranes."

On May 27, Dr. Hidde Ploegh will address, "A Fresh Look at Host-Pathogen Interactions: New Tools." He is a member of the Whitehead Institute and a professor of biology at MIT.

For more information or for reasonable accommodation, call Sarah Freeman, (301) 594-6747.

Bookstore Welcomes Customers

The Foundation Bookstore is a good place to pick up some summer reading. It has a selection of fiction and non-fiction books to choose from. The store can also order anything not in stock. It is located in Bldg. 10, Rm. B1L101. Come in to browse or phone the store at (301) 496-5272.

Oncology Fellowship Opportunities Announced

The interagency oncology task force, a joint initiative between NCI and the FDA, has announced fellowship training opportunities for Ph.D.s, M.D.s, and M.D./Ph.D.s or their equivalents in cancer-related scientific research and research-related regulatory review. The objective of the IOTF Joint Fellowship Program is to train a core of scientists in cancer research and regulatory review to develop skills that bridge the two processes. Fellows will learn to build awareness of regulatory requirements into the early stages of medical product development and will devise strategies to improve planning throughout the research and regulatory review phases. Fellows will also learn how to bring state-of-the-art knowledge and technology to bear on the design, conduct and review of clinical trials. More information about the program fellowships, some of which have deadlines this month, can be found at http://iotftraining.nci.nih.gov.

FAES Succeeds Merck as Concert Series Sponsor

For the past 20 years, the Manchester String Quartet has presented a series of free monthly concerts at NIH on Mondays from 12:30 to 1:30 p.m. The quartet is composed of members of the National Symphony Orchestra. The concerts combine music and informed commentary and extensive program notes by cellist Glenn Garlick. The concerts have been supported by the Merck Foundation, but after the 2008-2009 season, that funding will end. The Foundation for Advanced Education in the Sciences at NIH has committed to taking over support of the concerts starting with the 2009-2010 season, so that NIH patients and staff as well as members of the surrounding community can continue to enjoy them.

FAES fulfills many functions at NIH, including running a science bookstore and graduate school, and arranging for non-governmental staff, such as postdoctoral fellows, to obtain health insurance. Information on these aspects of the organization, as well as the quartet series, can be found at www.faes.org.

Dr. Jeffrey Sachs of Columbia University

Sachs Urges New Regard for World's Poor

By Ira Allen

All the recent progress in taming infectious diseases will mean little without systemic changes in the design, financing, management and delivery of health care around the world, health economist Dr. Jeffrey Sachs told an NIH audience recently.

Sachs, a best-selling author, Columbia University professor and Fogarty scholar-in-residence, reviewed elements of epidemiology, politics and economics—all operating against a backdrop of extreme poverty—to explain a grim global health reality.

Citing a $35 billion "financing gap"—or one-tenth of 1 percent of "rich world wealth"—between current funding and what is needed, Sachs said 9 million people die each year of preventable and treatable diseases. "That's not because people don't want to stay alive, that's because of the nature of extreme poverty."

While annual health care spending in poor countries is only about $15 a person, he estimates, $50 a person is needed to provide the personnel, physical structures, diagnostics, preventive measures and therapeutics needed for basic health care.

The lecture, which filled Masur Auditorium, was part of Fogarty's year-long 40th anniversary celebration and was cosponsored by the Foundation for the NIH.

Sachs said public health ought to be built from a "global system design" analogous to the world's air safety practices; based on a set of rigorous and uniform standards applied in all countries—from the airport to the traffic control system, maintenance and insurance.

"We need training programs like Fogarty's" to create cadres of in-country researchers, professional community health workers and public health managers, he said. "This was once called by the IMF and the World Bank 'bureaucracy.' That's not 'bureaucracy,' it's creating systems."

While $5 trillion worldwide has been earmarked for bailouts and stimulus packages, Sachs says the world's poor and sick have been ignored.

"We still haven't figured out the real proportionality of life on the planet," he said, noting that while Western institutions have given $5 trillion in "stimulus and bailouts" in the past year, "we haven't given a penny to the poorest of the poor…We not only can afford, in partnership with others, to assure health for all, there is no way we can afford not to do it" lest developing-world problems "come here with a vengeance."

Noting that AIDS was probably a worldwide pandemic killing millions during the 50 years between its transmission to humans and the Western world becoming aware of it, Sach said that today "we have a full worldwide pandemic of instability, of poverty, of mass migration, of violent conflict, of hunger and of new and re-emerging pathogens in a tightly connected world.

"With all of our knowledge…and with all our wealth I believe we can do better."

NIH Record Turns 60, Presents Its Entire History Online

It sure would be nice if 60 were the new 40, because the *NIH Record*, with this issue, turns 60 years old.


N.I.H. record

EDERAL SECURITY AGENCY — 20 May 1949 — PUBLIC HEALTH SERVICE NATIONAL INSTITUTES OF HEALTH

NIH TO HELP COMBAT DISEASE IN AFRICA

SOFTBALL AGAIN! BUT WHERE ARE THE DOCS?

When Dr. John Bonicvich yelled "Batter up" on May 11 to start the first NIH softball game of 1949, spring was officially here.

There weren't as many doctors running around the new diamond near the main entrance as used to be seen cavorting on the old field (now obliterated by construction of the Clinical Center), but the season is young yet. Drs. Norman Topping, F. A. Arnold, J. J. Griffiths, and other medical ballhawks will be out there any day now.

At the end of the season, members of the winning team get a medal or softball pin; and there will also be a party, as in the past, at Top Cottage.

WYCKOFF IS ELECTED TO NATIONAL ACADEMY

The election of Dr. Ralph W. G. Wyckoff, Chief of the Section on Molecular Biophysics, EBMI, to the National Academy of Sciences is one of the highest honors that can come to a scientist in this country.

At the annual meeting of the academy, 29 American scientists were elected. Membership is limited to 450. The elections which included Dr. Wyckoff brought the total membership within one of the maximum quota.

NIH Personnel Branch Is Commended

Commendation for the NIH Per-

DR. BRADY TO MAKE SURVEY FOR BRITISH

Assignment of Dr. Frederick J. Brady, Assistant Chief of the Laboratory of Tropical Diseases, to make a preliminary survey of conditions affecting the control of trypanosomiasis and malaria in East and West Africa has been announced by the Economic Cooperation Administration in Washington and London.

With Mr. Harry H. Stage, insecticide expert of the U. S. Department of Agriculture, Dr. Brady will develop detailed recommendations for further United States assistance in combatting the tsetse-fly and the mosquito, carriers of the two diseases. They will be particularly interested in determining how United

The biweekly newsletter first appeared on May 20, 1949, and its first headline could as easily have appeared on today's issue: "NIH To Help Combat Disease in Africa." Another front-page article was about softball, which back then attracted a broad demographic, from lab chiefs to custodians. There were just a handful of buildings in 1949, and the ball diamond stood out, serving as both a geographic and social nexus. The *Record* was a 4-page glance at an amazing scientific enterprise in its nascence. The first editions evoked an era that was simpler, slower and more convivial than the present.

Before the first decade was out, the newsletter fattened up in both page size and number; editors crammed an astonishing array of information into each issue, from the routine to the sophisticated. Through it all, however, two themes remained persistent: the science always got better, but the parking never did.

As a 60th anniversary project at an agency that has always valued its hometown newspaper, the *Record* recently mounted an online (and searchable) collection of every issue in its history (visit http://nihrecord.od.nih.gov/). Now you can find out, at a click, when your relative worked here, which President arrived by helicopter on campus and what Dr. Julius Axelrod looked like at the Nobel Prize party his colleagues threw for him.

The current staff of the *Record* (part of the Office of Communications and Public Liaison, OD) looks back in gratitude at the generosity, talent and vision of those who have guided NIH's communications enterprise over the past 6 decades. If journalism is history's first draft, then the work of the many hundreds of contributors who built our archive deserve credit as first authors of an ongoing story that has made our nation the benefactor of the world. It is a privilege to be your documentarians.

FLU OUTBREAK

CONTINUED FROM PAGE 1

response effort. The NIAID home page is providing updates.

"Part of the good news," says Dr. Carole Heilman, director of NIAID's Division of Microbiology and Infectious Diseases, "is that there's a tremendous amount of collaboration among the institutes and centers."

Gary Peck of the Travel Management Branch, ORS, demonstrates newly installed hand sanitizer dispensers outside Bldg. 31's C-wing elevators.

PHOTO: BELLE WARING

As CDC and other health officials track the disease, genetic sequences from patients affected by the current flu strain are being submitted to the NIH GenBank's Influenza Virus Resource, where "Dr. David Lipman [of NCBI] has a robust flu database," says Heilman.

Thanks to investments in pandemic preparedness for avian flu and SARS as well as in biodefense, "we have a lot of systems in play here," she adds. "Things are moving really rapidly, and not just at NIH."

Although there is no vaccine available right now to protect against the current outbreak, arming yourself with information can be helpful. So be prepared; follow NIH guidelines and your own IC's pandemic plans.

H1N1 flu is an infectious respiratory disease normally occurring in pigs, but human infections do happen. The current outbreak of disease in humans is caused by a novel, or new, virus for which we haven't had time to develop natural immunity. This particular bug can be passed from human to human and scientists are trying to discover just how easily that happens.

"This influenza virus is remarkably adaptive," says Heilman. A subtype of the influenza A virus, it's a reassortment of genetic material from viruses that cause swine flu and human flu.

Signs and symptoms of H1N1 flu are similar to regular (seasonal) human flu, including fever, cough, sore throat and body aches. Complications may include pneumonia and respiratory failure.

You catch H1N1 flu the same way you catch seasonal flu or colds. Launched by a sneeze or cough, the virus travels on droplets.

Everyday preventive actions can be effective. Cover sneezes and coughs with a tissue or the crook of your elbow. The bug can survive for a couple of hours on environmental surfaces, so wash hands frequently with soap and water for at least 20 seconds or sanitize with alcohol-based hand cleaner. (Flyers detailing these procedures have become ubiquitous on campus in recent days.) Avoid touching eyes, nose or mouth. Try to avoid those with flu. They may be contagious a day before symptoms develop and 7 or more days after becoming sick. Get enough sleep and exercise, manage stress, drink plenty of fluids and eat right.

If you get sick, stay home. If you know you have been exposed, ask your doctor about the antiviral drugs Tamiflu or Relenza, which may make the course of the illness milder. Go to the hospital if you experience severe symptoms, such as difficulty breathing.

Note that eating pork or pork products does not cause H1N1 influenza.

CDC recommends that U.S. travelers avoid all nonessential travel to Mexico, due to the severity of the outbreak.

And don't panic. "We have systems in place," says Heilman, "that are ready to adapt to emergent needs and allow us to respond to potential epidemics. One of NIAID's unique qualities is that we are prepared to respond to outbreaks such as this one. Our investigators are rising to the task."

The Clinical Center is preparing for all possibilities and is prepared to deploy a set of enhanced infection prevention and control steps, according to Dr. David Henderson, CC deputy director for clinical care. The hospital will operate slightly differently from other ICs; day-to-day management decisions will be based on patient care and patient safety requirements.

Meanwhile, "if and when it hits our area," Henderson says, "if people are getting very sick, obviously they should get in touch with their doctors. But if people are mildly ill, then stay put and weather it out. If you can manage it, stay home; try to segregate yourself within the household.

"Hand hygiene is astoundingly important in terminating these epidemics," he continues. "It means not behaving the way we often do." For everyday office use, "an alcohol-based hand cleaner is highly effective against these kinds of viruses."

Sen. Carl Levin (l) of Michigan, a longtime advocate of addiction treatment, attended the recent press conference. NIDA director Dr. Nora Volkow (r), who is holding a NIDAMED patient postcard, also spoke at the event.

NIDA Launches Drug Use Screening Tools For Physicians

The National Institute on Drug Abuse recently unveiled its first comprehensive physicians' outreach initiative, NIDAMED, which gives medical professionals tools and resources to screen their patients for tobacco, alcohol, illicit and non-medical prescription drug use.

NIDAMED resources include an online screening tool, a companion quick reference guide and a resource guide for clinicians. The initiative stresses the importance of the patient-doctor relationship in identifying unhealthy behaviors before they evolve into life-threatening conditions.

The NIDAMED tools—targeting primary care clinicians—were launched at a news conference at the National Press Club.

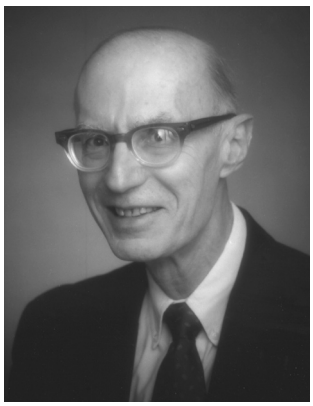
"Many patients do not discuss their drug use with their physicians, and do not receive treatment even when their drug abuse escalates," said NIDA director Dr. Nora Volkow. "NIDAMED enables physicians to be the first line of defense against substance abuse and addiction and to increase awareness of the impact of substance use on a patient's overall health."

In 2007, an estimated 19.9 million Americans ages 12 or older (around 8 percent of the population) were current (past month) users of illegal drugs—nearly 1 in 5 of those 18 to 25 years old—and many more are current tobacco or binge alcohol users. The consequences of this drug use can be far-reaching, playing a role in the cause and progression of many medical disorders, including addiction. Yet only a fraction of people who need addiction treatment receive it.

"I have long worked with NIDA to increase access to effective treatment in the battle against addiction," said Sen. Carl Levin of Michigan, who attended the press conference. "By encouraging physicians to consult with, screen and refer their patients who are in need of treatment, the NIDAMED initiative is a critical step towards achieving that goal."

The NIDAMED tools were developed because doctors are in a unique position to discuss drug-taking behaviors with their patients before they lead to serious medical problems. Research shows that screening, brief intervention and referral to treatment by clinicians in general medical settings can promote significant reductions in alcohol and tobacco use.

Congress Directs NCI to Establish Rabson Award



Dr. Alan S. Rabson, deputy director of NCI, was recently honored by Congress for his continuing years of service to NIH.

The House appropriations committee directed NCI to establish a fellowship titled the Alan S. Rabson Award. The honor acknowledges Rabson's work over the past 53 years as a pathologist, researcher, administrator and clinical advisor and highlights his numerous discoveries in virology and authorship of more than 100 scientific journal articles. It also recognizes his life-long dedication to helping cancer patients and their families cope with their diagnoses. The congressional directive also honors the service of Rabson's wife, Dr. Ruth Kirschstein, who has served as acting director of NIH, director of several institutes and is now a special advisor to the NIH director.

Kirschstein already is the recipient of another congressional honor. In 2002, the National Research Service Award Program was renamed the Ruth L. Kirschstein National Research Service Award Program as a tribute to her years of exceptional service to the nation. Under this congressional authority, NIH awards individual postdoctoral fellowships to promising applicants with the potential to become productive, independent investigators.

NCI plans to establish the new Rabson award soon.

***Fitness for molecules**. With Dr. Kuan Wang (shown top, r), chief of NIAMS's Laboratory of Muscle Biology, Dr. Jeffrey Forbes studies how molecules handle mechanical stress with nano tools such as atomic force microscope, single molecule fluorescence and molecular modeling of stressed molecules. "All molecules are elastic to some degree and would fail at some point when they are pushed too far, so it is very important to understand how nature designs the stress-handling capability," Forbes said. "This is a fun place to do research…We developed and fabricated many of the nano tools we use." Wang commented, "Since force is the most important function of muscles, the mechanical strength of the proteins that are used to assemble the contractile machinery is critical from a structural engineering point of view. This is an emerging field called mechanobiology that is propelled by nanotechnology."*

***Freeze frame**. Dr. Dennis Winkler (below, l), instrumentation specialist for Dr. Alasdair Steven's Laboratory of Structural Biology Research, NIAMS, shows "nano tourists" how his lab uses cryo-electron microscopy and cryo-electron tomography techniques to study biological complexes such as viruses and cellular components. By using powerful computers to analyze the images from the electron microscopes, researchers produce highly detailed models of the specimens they are investigating, allowing them to explore life on the nano scale.*

PHOTOS: ERNIE BRANSON, CARLA GARNETT

one from clinicians to physicists."

First, a Review

NEI's Dr. Richard Fisher, who introduced the first public session of NanoWeek on Apr. 8, offered a brief history of nanoscience at NIH. He recalled "Nanoscience and Nanotechnology: Shaping Biomedical Research," a symposium on the then-new field's potential in medical research that NIH held in 2000. NIH is one of 25 agencies in the National Nanotechnology Initiative that formed in 2001 to coordinate federal research and development in the field and to envision its future. NNI estimates that about 20,000 scientists worldwide are working in the nanotechnology realm now. The number is sure to increase as more potential applications and benefits are revealed.

The NIH Roadmap Nanomedicine Initiative funding began 4 years ago, after 2 years of planning, Wang added. He said NIH is ahead of the curve on nano applications, but lags behind institutions like NIST when it comes to fabrication of nano chips and instrumentation. Partnering up, then, benefits everyone, he said.

For their part, NIH'ers seem eager. Cosponsored by the trans-NIH nanotechnology task force and the Roadmap initiative—and assisted by the nano scientific interest group—NanoWeek is a "reflection of growth and interest in nanotechnology in the NIH community," Fisher noted.

In addition to several days of lectures in Natcher Bldg., the week also included a poster session of current projects by researchers in the Baltimore-Washington area, lab tours (see photos/captions) of work under way at NIH and concurrent closed-session symposia with engineering industry scientists. Those talks, which involved pre-published research, intellectual property and other issues, were cosponsored off-campus by IEEE, a leading professional association for technology advances.

'A Particular Kind of Small'

Dr. Mark Ratner, a physical chemist at Northwestern University, led off Apr. 7 with an overview of nano fundamentals. "Nano is not just small," he said. "It's a particular kind of small."

Nature designs at the nanoscale, he explained. Scientists are keenly interested in the process of assembly that occurs with particles this tiny. And tiny they are. A nano is one-billionth of a meter. A human hair is about 60 to 100 times bigger than a nano.

"But size is only the beginning of the nanoscience story," said Ratner. "What pioneers in the field are trying to do now, and what medical researchers are most concerned with currently, is how nano particles behave. Turns out that once certain substances are examined at their nanoscale level, their properties and the ways they react to stimuli are vastly different than when they are viewed at their larger level."

For example, look at the metal gold. "Take a piece of gold and cut it in half," he said. "Nothing about the gold really changes. The melting point of it remains the same. The color remains the same." However, if you repeat the halving maneuver 18 times, the metal "melting point changes and the color changes."

Ratner described nanomedicine applications that are already showing promise in the lab. Researchers have developed nano particles that have repaired spinal cord injury in rats and theoretically regenerated the good cholesterol in blood samples.

He ended with slides showing how wide open the nanomedicine field remains. Security, education, environment, economics (globalization, training) and ethics (privacy, equality)—"all of these issues involve aspects of nanoscience," he noted. "But in particular health and safety issues have come very much to the fore. There have been two recent studies out of the [National] Academy [of Sciences] and there will be more, because as these things come up in society, we have to worry about them—regulating them and figuring out when they're safe and when they're not…We really don't quite understand what the capabilities of nanoscience and nanotechnology are. I think we're just scratching the surface of what could actually happen in these structures and in these situations."

Coming to Terms

At the opening Natcher session, NIH deputy director for intramural research Dr. Michael Got-

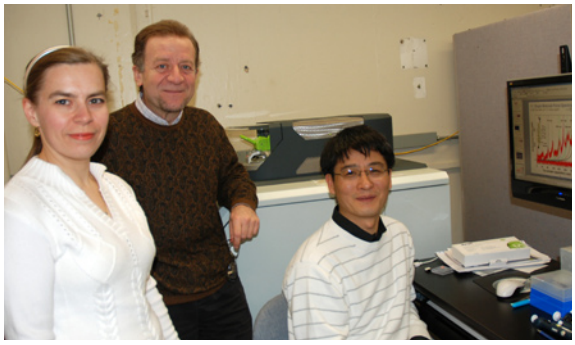
Whole new views. *NHLBI biologist Dr. Clare Waterman, also using a "homemade" TIRF (see Jin caption, at right) apparatus, studies how a cell moves and the dynamic assembly of proteins. "I can't see dynamics with simple microscopy," she says, explaining that the limit of a light microscope is about 250 nanometers. "'The Beast' here, which includes three cameras, several spinning disks and 6 different colors, allows us to push the limits of microscopy. I'm seeing [the protein-building process] alive. It's a new twist to take it to the nano level. Obviously, it's more physiologically relevant to be able to view 3-D organisms."*

tesman said he had at first wondered if nanomedicine deserved its own field. Was it "sufficiently different from molecular biology, structural biology or the biochemistry of molecules at the nanoscale to give it a new name?" he asked. "I now realize that nanotechnology encompasses not only traditional nanoscale science, but [also] a whole new set of approaches to measuring nanoscale phenomena and to developing nano machines such as nano tubes and devices to interrogate and treat cells at a subcellular level."

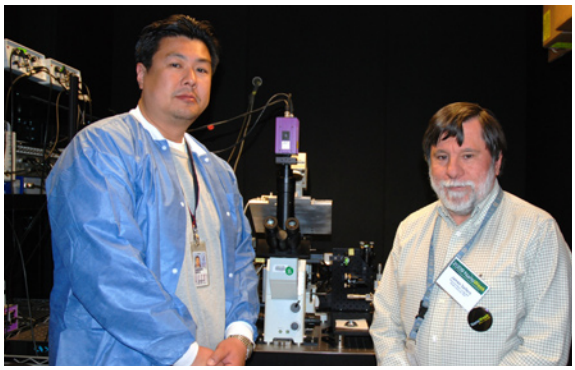
He also described how much there is to discover in the fledgling discipline. "Very little is known about the environmental effects of a growing number of nano particles that we're using in everyday life," Gottesman said. "They're already being using in household cleaning materials and we're beginning to use them in medicine. One of the challenges is to determine the effect on living organisms of novel nano particles that have never been seen in nature before and we need to assemble this information before there's massive environmental release and medical use."

So new is the field that even those working in it may not always speak the same language, he noted.

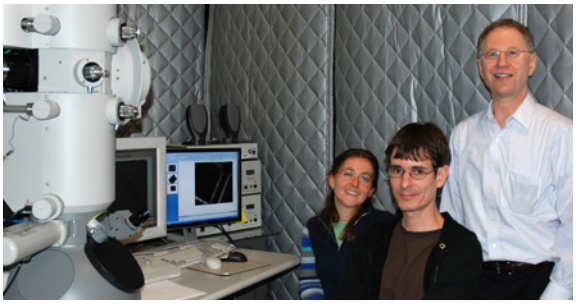
"Another problem is the need to find ways to describe the properties of nano particles and to standardize the terminology and the measurements," Gottesman concluded. "This is essential so that scientists who work in the field can communicate meaningfully with each other. When they talk about a certain nano particle they'll all be talking about the same thing. One of the goals of NanoWeek at NIH is to initiate this communication process."



First in U.S.. *Dr. Albert Jin (r) has led the development of a comprehensive biological atomic force microscopy (called bio-AFM) facility with Dr. Emilios Dimitriadis (c) and Dr. Svetlana Kotova in the group of Dr. Paul Smith, chief of BIMIS/NIBIB. The facility now features a ForceRobot single molecule force spectroscope (shown in background), a PicoForce multimode high-resolution AFM-imaging platform, a total internal reflection fluorescence (TIRF) Bioscope Z AFM platform, and a multi-modal Raman-TIRF-AFM platform. Using these nanotech tools and collaborating with scientists both inside and outside NIH over the last 10 years, the group has carried out a broad range of cutting-edge medical applications such as the nano-characterization of malaria vaccine components and DNA/HIV-integrase complexes. "At NIH, we deployed the first machine of this kind in the U.S. last year, and have obtained informative results on folding/unfolding of protein clathrin and malaria vaccine candidates," said Jin. "Much of our work would not be possible at all without nanotechnology."*



Recipe for nanotools. *With Dr. James R. Sellers (r), a senior investigator in NHLBI's Laboratory of Molecular Physiology, Dr. Yasuharu "Harry" Takagi built the laser-computer-microscope-videocamera apparatus shown in the background, which is capable of "optical trapping"—viewing, tracing and monitoring—myosins, the motor proteins that move along actin filaments inside of cells. To capture perspectives at this nanoscale level, the researchers designed their own machines using mostly commercially available parts so they can now envision a single molecule at work. More importantly, they also wrote down the recipe for the elaborate "Lego-like" structure, so other scientists can make similar nanotools. "But that's what NIH does, right? That's exactly why we're here," Sellers points out.*



Team-building paramount. *Working with Drs. Alioscka Sousa (c) and Maria Aronova, Dr. Richard Leapman (r) of the NIBIB Laboratory of Bioengineering and Physical Sciences emphasizes the interdisciplinary nature of the field. His lab uses nano techniques to localize and characterize particles via electron microscopy en route to helping to develop nano particles that can potentially deliver cancer therapy. For example, the group has been collaborating with Dr. Hemant Sarin, a physician and imaging sciences training fellow in NIBIB and the Clinical Center, and Dr. Gary Griffiths, a chemist and director of NHLBI's Imaging Probe Development Center, in pre-clinical studies to develop dendrimer nano particles for glioma "theranostics" (combined therapy and diagnostics). They have also collaborated with Dr. J. Silvio Gutkind, biochemist Dr. Vyomesh Patel and colleagues in NIDCR, and Prof. James Rusling and Dr. Ashwin Bhirde, chemists at the University of Connecticut, to investigate pre-clinically the use of functionalized carbon nano tubes for targeted treatment of head and neck cancer. "Breakthroughs will come from teams—clinicians working with biologists working with chemists working with physicists," Leapman said.*

KIDS AT WORK

CONTINUED FROM PAGE 1

***Top**:*
At left, NBC-TV local anchor Wendy Rieger (c) cuts ribbon to open the new NIH Library Green Terrace on Apr. 21. Also on hand are (from l) Dr. Alfred Johnson, ORS director; Ed Pfister, formerly of ORS but now at HHS; Howard Kelsey, HHS deputy assistant secretary for facilities management and policy; Shirl Eller, ORS associate director for program and employee services; and Dan Wheeland, ORF director.

At right, the NIH Library Green Terrace is actually a roof over the NIH Library's journals collection and was modeled after the green roof at the Gateway Center near Metro. The terrace has shade structures, benches and "living walls" that plants will climb. Nearby solar panels will power both the walkway lanterns on the terrace and an irrigation system that recycles rainwater.

***Below**:*
Helping dish up dirt to nourish a seedling is ORF's Joseph Musa (r).

PHOTOS: RICH MCMANUS, MICHAEL SPENCER

bags burst with souvenirs, including science education information.

A record 85 activities were planned by the ICs and the Office of Equal Opportunity and Diversity Management, which sponsors the observance. The activities covered a range of science and administrative work. Some of the most popular provided hands-on demonstrations and interactive participation, including Fantastic Voyage Through the Department of Laboratory Medicine and Searching for the Allergen and Air Supply, both sponsored by the Clinical Center.

Also drawing crowds were Bldg. 49 Animal Resources in Action!, sponsored by NEI, and two NIDCR offerings: 3-D Facial Images and Bones and Teeth.

Some favorites from last year were repeated, including NLM's Kids on the Grid and I Want to Build a Rocket!—How to Get Your Ideas Off the Ground at NIH, sponsored by CSR.

New this year was Spectacular Science, sponsored by the NIH Federal Credit Union. It included indoor fireworks, bubbling potions and amazing chemical reactions. One workshop, The Mysteries of Pathology, by NCI, took children beyond the forensic activity of the popular television *CSI* crime shows. The children examined normal human lung, kidney and brain tissues along with their diseased counterparts.

There were also workshops to get the kids moving such as Zumba Fitness Dance and Salsa Dance, sponsored by the R&W.

Three large tents erected on the lawn of Bldg. 1 introduced youngsters to environmental issues and information, presented by the Office of Research Facilities. Green options in food, travel, commuting and household purchasing were presented and kids could walk through a Wetlands on Wheels trailer or tour a portion of the NIH stream. Giveaways here included plants and tree seedlings.

Two days earlier, on Apr. 21, NIH inaugurated the Earth Day observance by inviting NBC-TV reporter Wendy Rieger to talk about issues that have arisen during the 4 years she has been the station's "Going Green" reporter. For an hour in Lipsett Amphitheater she regaled the audience with findings ranging from her vegetarian diet of the past 2 years ("The greatest thing I ever did"), to advice on eco-friendly paint, carpet, shopping bags and where to find the city's best bulgogi sandwiches ("Java Green, at 19th and L").

After her talk, Rieger led attendees to a ribbon-cutting for the new NIH Library Green Terrace, adjacent to the South Lobby of the Clinical Center. The sun-beaten old patio has been completely redone. Its old paving stones were recycled and the space has been transformed into a nearly self-sustaining oasis of calm and quiet. New features include shade structures, seating, plantings on both the ground (the patio is actually a roof over the NIH Library's journal collection, and the "green roof" is modeled on the

Enjoying a seedling giveaway manned by ORF's Jim Carscadden (l) are youngsters Reynard Davis and Nadia Hines. With them are Edith Davis of NIDA and Robert Hines (r) of ORS.

Enjoying a day at NIH is Grayer Warren, 4, with mom Shamay Knox of NIAID.

one that debuted last summer at NIH's Gateway Center) and walls; plants will climb wires running up the brick sides of the patio.

Other green features include solar panels that will power the lanterns along the patio's footpath and provide electricity to run pumps that will propel rainwater collected in cisterns into an irrigation system. ORF planners also hope to capture wind power at that particularly breezy part of Bldg. 10, and to incorporate a water feature of some kind.

Above, Cpl. Brian Sims of the NIH Police allowed kids to sit in a squad car. Below, playing at the hands-on watershed model are Daniel Zhong (l) and Veronika Polushina (second from l). At right is Mary Hash of the NIH Library.

At left, Justin Bellizzi of Catoctin Wildlife Preserve and Zoo displays a Gila monster. Children visiting the IT contest booth (shown above, r) were fascinated by the Gila monsters. PHOTOS: JEREMIAH TAMAGNA-DARR

What Was IT?

No, the two venomous lizards sighted in front of Bldg. 1 during NIH's Earth Day event weren't escapees from Jurassic Park. They were live specimens of the mystery organism described in the Division of Environmental Protection's annual "Name IT" contest, which was established to improve awareness of the importance to NIH"s research mission of protecting biodiversity. Clues to the identity of IT were published in the Apr. 3 issue of the *NIH Record*.

It's been traditional to have the real mystery plant or animal from the "Name IT" contest present at Earth Day. This year, our special guests were a pair of adult Gila monsters (*Heloderma suspectum*) on loan from the Catoctin Wildlife Preserve and Zoo in Thurmont, Md.

One of the most important drugs used for treatment of type 2 diabetes was derived from the saliva of the Gila monster. Dr. Kristina Rother of NIDDK visited the Gila monster Earth Day display and provided information about a research project she is working on involving a potential application for treatment of type 1 diabetes.

Gila monsters are found in northwestern Mexico, and in Arizona, California, Nevada, New Mexico and Utah. They are not currently listed under the Endangered Species Act but are protected by state laws in all areas where they are found. They were the first venomous reptile to be protected under any law, back in 1952. Wild populations are thought to be small and declining, largely as a result of habitat destruction from overgrazing, truck farming and cotton planting.

This year, 34 correct answers to the "Name IT" contest were submitted. Three winners were randomly selected from the correct entries and will receive prizes courtesy of R&W. This year's winners are: Magdalen Stevenson, NIMH; Brandon Stone, CC; and Rick Troxel, CIT.—**Ed Rau**

NIMH Shows Off One of Its 'Brightest Jewels'

By Kevin Lyn Sisson

NIMH's Intramural Research Program is one of its "brightest jewels," institute director Dr. Thomas Insel recently told a consortium of advocacy group leaders representing patients with mental disorders and their families. "It's our venture space, our incubator, our place to experiment on things that might take a lot more time and investment if done in a university setting."

Dr. Judith Rapoport, chief of NIMH's Child Psychiatry Branch, speaks at Natcher Bldg.

Insel and researchers from several of NIMH's 22 intramural labs and branches spoke at a meeting of the NIMH Alliance for Research Progress held at Natcher Conference Center.

"We start with brilliant and dedicated scientists," added Dr. Richard Nakamura, scientific director, Division of NIMH Intramural Research. "We support ideas and principal investigators, not projects. We allow risk taking, failure and recovery from failure. We permit PIs to drastically change their research directions when the science requires it and we try to ensure that they have the freedom to choose the best scientific directions."

One such example is the Child Psychiatry Branch, which began focusing on children's brain development in 1989, using magnetic resonance imaging (MRI), a technique that provides images of the brain's structure.

"This all started with a terribly simple-minded idea—that a very large fraction of serious psychiatric disorders are related to neurodevelopment and that we first needed to learn more about normal brain development," said CPB chief Dr. Judith Rapoport.

Hundreds of children, as young as age 5, were recruited, to return every 2 years for a brain scan. By following the same children in longitudinal studies as they matured, scientists were able to track brain development in healthy kids as well as in children with psychiatric disorders such as ADHD and schizophrenia.

Studying the same children over an extended period of time, Rapoport and colleagues including Dr. Jay Giedd and Dr. Philip Shaw, were able to observe changes in the children's brains related to mental disorders. Previous studies using cross-sectional data comparing different children at different ages had only allowed researchers to make inferences about development. Now for the first time, the researchers were able to detect abnormal patterns of structural growth that actually predated any of the disorder symptoms.

In the case of children with attention deficit disorder, brain imaging studies revealed that though the brain continues to mature in a normal pattern, growth of some parts of the cortex is delayed up to 3 years. This provided clues as to why some children eventually grow out of ADHD.

The research also showed that the delayed pattern of maturation observed in ADHD is far different than that seen in other developmental brain disorders like autism, in which the number of certain brain structures peaks at a much earlier-than-normal age. These findings suggest that the biological origins of autism likely precede the end of the first year of life, when rapid overgrowth of brain structures begins.

Rapoport's imaging studies revealed information about other pediatric mental disorders. Despite evidence of some overlap in symptoms and genetics, pediatric bipolar disorder and childhood-onset schizophrenia likely do not stem from the same underlying illness process, as previously suspected.

After many years of piecing together clues revealing certain mysteries of the brain, Rapoport is more excited than ever about her team's findings. "I still pinch myself that I'm going to work at the job that I have every day," said Rapoport, who recently received the $50,000 Mind of America Scientific Research Award from the National Alliance on Mental Illness for her years of accomplishment in the NIMH intramural program.

As data from the intramural studies accumulate from more than 6,000 MRI scans of 2,000 children and teens, scientists at NIMH are moving closer to understanding how the brain develops, where and when the circuitry and systems go awry and how to begin to construct paths to treatment and intervention.

Dr. Sean Mackey of Stanford will deliver the next lecture in NIDCR's seminar series From Basic Research to Therapy—The Latest Frontier.

Stanford's Mackey To Speak on Neuroimaging of Pain, May 21

On Thursday, May 21 at 2 p.m., Dr. Sean Mackey will deliver a talk titled "The Strain in Pain Lies Mainly in the Brain: What Have We Learned from the Neuroimaging of Pain?" in Lipsett Amphitheater, Bldg. 10. His talk is part of NIDCR's seminar series From Basic Research to Therapy—The Latest Frontier.

Mackey's work is focused on elucidating the mechanisms of pain perception and control using neuroimaging techniques such as virtual reality and fMRI. One study uses real-time fMRI images to show patients how their brain functions when in pain and trains them to gain more control of their pain experience through relaxation and other cognitive techniques. Another project uses neuroimaging to investigate how chronic pain causes changes within the brain that amplify and maintain pain.

Mackey is associate professor in the departments of anesthesia and neurosciences at Stanford University School of Medicine. He is also a co-director of the Stanford Pain Research and Clinical Center, which brings together clinicians, researchers, engineers and patients to work toward solving the problem of chronic pain.

If you wish to meet with Mackey during his visit, contact Dr. Nadya Lumelsky at (301) 594-7703 or nadyal@nidcr.nih.gov.

Sign language interpretation will be provided. For more information, or for reasonable accommodation, contact Mary Daum, (301) 594-7559, and/or the Federal Relay (1-800-877-8339).

EHP Partners with Mexican Public Health Journal

EHP *editor-in-chief Dr. Hugh Tilson*

PHOTO: STEVE MCCAW

Scientists in Mexico and other Spanish-speaking countries can now enjoy the benefits of a new partnership announced recently between the NIEHS-funded journal *Environmental Health Perspectives* and the interdisciplinary Mexican journal *Salud Pública de México,* according to *EHP* editor-in-chief Dr. Hugh Tilson. Issues of the Mexican journal now feature 10 to 12 pages of *EHP* environmental health news articles translated into Spanish to help Latin American readers stay current on advances in the environmental health sciences.

"We are happy to share *EHP* with our Spanish-speaking neighbors, to increase the reach of these important environmental health studies and to increase overall awareness of environmental issues worldwide," said Tilson.

Carlos Oropeza Abúndez, executive editor of *Salud Pública de México,* said, "It is our desire that the collaboration between *EHP* and *Salud Pública de México* will strengthen the scientific communication in Spanish of key environmental health issues, and that it will be the first of future efforts to promote public health."

EHP is an open-access journal published monthly, available free online and by subscription. The recent partnership is the latest of the journal's international outreach efforts, which include a Chinese-language edition, as well as partnerships with *Mali Médical*, *Ciencia y Trabajo* and *Ciência & Saúde Coletiva*. The journal also has established collaborations with foreign public and environmental health organizations.

The Instituto Nacional de Salud Pública, an independent entity supported by Mexican federal funds, has published the bimonthly *Salud Pública de México* since 1959. The journal, with articles in English and Spanish, is indexed by Medline and other major indexing organizations.—**Eddy Ball**

milestones

Retirement Holds New Challenges for NIA's Monjan

By Anne Decker

"I'm going to retire while my ratings are still high," declared Dr. Andrew Monjan, leaning back in his chair in his Wisconsin Ave. office. "It's time." As chief of the Neurobiology of Aging Branch in the Division of Neuroscience at NIA, he has been instrumental in the development and monitoring of research on the aging brain. He is retiring after 26 years with NIH.

While acknowledging he will miss his coworkers and grantees, Dr. Andrew Monjan said his job has primed him for retirement.

"Andy has been an advocate for sleep research both at NIA and trans-NIH and is well respected by the sleep community," said Dr. Marcelle Morrison-Bogorad, director of NIA's Division of Neuroscience. She adds that sleep research has been a central focus of Monjan's research portfolio. He has also served on the sleep disorders research advisory board of the National Center on Sleep Disorders Research and as executive secretary of the National Commission on Sleep Disorders Research. He also worked with NASA on several joint conferences and initiatives, including STS-90 (Neurolab) and STS-95. On flight STS-95, 77-year-old former astronaut John Glenn underwent space-related aging studies that included the effect of space travel on bone and muscle.

"Andy is unflappable," Morrison-Bogorad said. "We shall miss him greatly."

Over the course of his career here, Monjan received an HHS Public Health Service Award for High Quality Work Performance, three NIH Director's Awards, including one for a multicenter clinical trial in treatment of Alzheimer's disease, three NIA Merit Awards, three NIH Blueprint for Neuroscience Research Director's Awards, and a NASA Group Achievement Award to the Neurolab Spacelab mission science team.

Monjan earned a B.S. degree in psychology in 1960 from Rensselaer Polytechnic Institute and was awarded a Ph.D. in psychology from the University of Rochester in 1965. He completed a 2-year postdoctoral appointment at Rochester's Center for Brain Research, studying visual neurophysiology. This was followed by appointments in the departments of psychology and physiology at the University of Western Ontario (1966-1969) and the department of epidemiology at Johns Hopkins University School of Hygiene and Public Health (1971-1983), where he earned an M.P.H. in 1970.

In 1983, Monjan joined NCI to support the development of an extramural research program on the epidemiology of AIDS. Drawn by the challenges of health science administration, he moved to NIA in 1985 to help build programs aimed at understanding the aging process.

Monjan is known for his keen sense of humor and dry wit and also for his fondness for daring activities, including scuba diving in shark-filled waters, sailing and hiking.

"He seems to relish pushing himself to new limits in order to experience more fully the world around him," said Molly Wagster, chief of NIA's Behavioral and Systems Neuroscience Branch. "He downplays the annoyances and perils and emphasizes the excitement and fun of a new experience. It's the same way he conducts himself at work."

Monjan says he finds scuba diving physically and intellectually challenging. The fact that he dives in caverns in remote locations does not worry him. "Sharks won't bother you as long as you don't bother them," he noted. In retirement, he and his wife will continue to travel—they recently returned from a trip to Antarctica—and to sail on a boat he has had since 1973. "A day on the water is like another day of life," he said. "It's calm, peaceful and invigorating."

While acknowledging he will miss his coworkers and grantees, Monjan said his job has primed him for retirement. "I'm going to retire to use what I've learned about aging," he said.

NIAID's Morens Elected AES Head

Dr. David Morens, senior scientific advisor to NIAID director Dr. Anthony Fauci, was recently elected president of the American Epidemiological Society. Founded in 1927, AES is characterized by an elite membership of leaders in the field of epidemiology. The AES mission is to provide a scientific forum for senior epidemiologists. The society has counted among its members Wade H. Frost, Alexander Langmuir, Jonas Salk and Abraham Lilienfeld, among other notable people in the field.

NIDA's Rapaka Earns International Award

Dr. Rao S. Rapaka, chief of the Chemistry and Physiological Systems Research Branch in NIDA's Division of Basic Neuroscience and Behavioral Research, was the first recipient of the Lifetime Research Achievement Award of the International Symposium on Organic Synthesis and Drug Development held at Nanjing University in Nanjing, China.

Nobel laureate in chemistry Dr. Aron Ciechanover of the Technion-Israel Institute of Technology in Israel presented the award. The symposium was sponsored by Nanjing University, the Chinese Academy of Sciences, Shanghai Institute of Organic Chemistry and NIH. Rapaka was cited for his original research and his foresight in promoting new frontiers of research by the organization of symposia and developing new announcements.

In addition to being cited for his work in medicinal chemistry and drug development, he was honored for enhancing the emerging area of "lipidomics." Rapaka recognized the importance of this field and organized the first international symposium on lipidomics at NIH. He later planned four more symposia in Italy and Hungary on the topic. Previously, Rapaka organized a series of Indo-U.S. symposia.

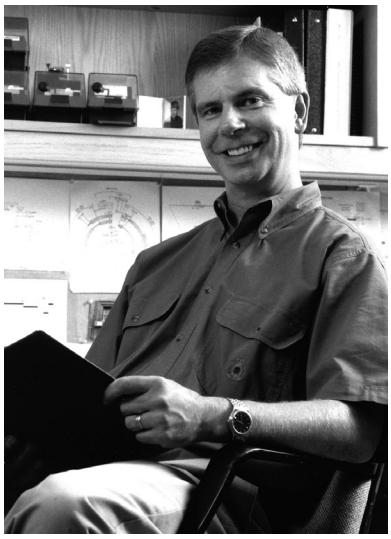
Prior to this award, his contributions to medicinal chemistry have been recognized numerous times: He is the first recipient of the Achievement Award from the American Peptide Society, the American Association of Pharmaceutical Scientists Achievement Award and the Michael Morris Award from the College on Problems of Drug Dependence.

Biophysical Society Honors NIGMS's Berg

NIGMS director Dr. Jeremy Berg (r) received the 2009 Distinguished Service Award from the Biophysical Society at its annual meeting in Boston recently. The award, presented by then-society president Dr. Harel Weinstein, recognizes service in the field of biophysics and contributions beyond achievements in research.

The society cited Berg "for his active and continuous support for biomedical research in general, and biophysics in particular, and the successful and creative leadership he has demonstrated in these activities." Berg's research focuses on the structural and functional roles that metal ions, especially zinc, have in proteins. During the meeting, Berg also joined former U.S. Congressman John Porter, chairman of Research!America, in a panel discussion of science policy in the Obama administration.

NCI Section Chief Brady Mourned



Dr. John Brady, in 1995

Dr. John N. Brady, 57, chief of the virus tumor biology section of the Laboratory of Cellular Oncology, died Apr. 27 of colon cancer.

Brady studied interactions that influence viral and cellular gene regulation, viral pathogenesis and oncogenic transformation. His career included noteworthy studies of DNA tumor viruses and retroviruses. He published more than 200 research papers in journals, served on editorial boards for several virology journals and was named to the advisory board for the International Retrovirology Association.

Brady also managed to find time to serve as president of the Montgomery County Baseball Association, an organization that promotes baseball for youth.

Brady joined the Center for Cancer Research in 1984. In 1998, he received an NCI Intramural Award for Innovative Research and, in 2002, the NIH director named him an NIH senior biological research scientist, an appointment reserved for researchers with outstanding achievements. In his lab, he was dedicated to mentoring many undergraduates and fellows who have since flourished in science. In 1996, he added teaching to his career, being appointed adjunct professor at George Washington University Institute for Biomedical Sciences.

Brady's research career began at Kansas State University, where he earned a Ph.D. for work on the molecular structure of polyoma virus. During the early stage of his career, he focused on SV40 transcription regulation.

He is survived by his wife, Laraine, and two sons, Matt and Kevin.

digest

Analysis of Domestic Cattle Genome Sequence Published

An international consortium of researchers has published the genome of domestic cattle, the first livestock mammal to have its genetic blueprint sequenced and analyzed. The landmark research will bolster efforts to produce better beef and dairy products and lead to a better understanding of the human genome. The sequencing and analysis of the bovine genome was funded in part by U.S. Department of Agriculture components, which contributed about $10 million. Approximately $25 million was contributed to the project by the National Human Genome Research Institute. In a paper published in the journal *Science*, researchers from the Bovine Genome Sequencing Project estimate that the genome of the domestic cattle (*Bos taurus*) contains approximately 22,000 genes and shares about 80 percent of its genes with humans. The researchers also report that the organization of human chromosomes is closer to that of domestic cattle than to those of rats or mice. The analyses, which involved comparing the domestic cattle genome sequence to those of the human, dog, mouse, rat, opossum and platypus, provide critical insights into the structure and function of the human genome.

An international consortium of researchers has published the genome of domestic cattle, the first livestock mammal to have its genetic blueprint sequenced and analyzed.

Risk of Autism Tied to Genes that Influence Brain Cell Connections

In three studies, including the most comprehensive study of autism genetics to date, investigators funded in part by NIH have identified common and rare genetic factors that affect the risk of autism spectrum disorders. The results point to the importance of genes that are involved in forming and maintaining the connections between brain cells. Autism spectrum disorders (ASD) comprise a group of disorders with core symptoms that include social interaction problems, poor verbal and nonverbal communication and repetitive behaviors. These disorders range from severe (autism) to mild (Asperger's syndrome) and in total affect some 1 in 150 American children, about three-quarters of whom are boys. Researchers theorize that the social parts of the brain are underdeveloped in ASD. "Previous studies have suggested that autism is a developmental disorder resulting from abnormal connections in the brain. These three studies suggest some of the genetic factors which might lead to abnormal connectivity," said NIMH director Dr. Thomas Insel. The studies were funded in part by NIMH, NINDS, NICHD, NIDCD and the National Center for Research Resources. The largest study, reported in *Nature*, involved more than 10,000 subjects, including individuals with ASD, their family members and other volunteers from across the U.S.

New Understanding of Dengue Virus Points Way to Possible Therapies for Dengue Fever

Doctors have no specific drugs to treat dengue fever, a viral illness spread by mosquitoes that sickens 50 million to 100 million people worldwide each year. Instead, the only treatments they can recommend for this painful and sometimes fatal illness (20,000 deaths globally each year) are fluids, rest and non-aspirin pain and fever reducers. Now, researchers have identified cellular components in mosquitoes and in humans that dengue virus uses to multiply inside these hosts after infecting them. Their findings could lead to the development of anti-dengue drugs that would inhibit one or more of these host factors, thus curtailing infection and the development of disease. NIAID funded the research, which was led by Dr. Mariano Garcia-Blanco of Duke University Medical Center and appeared in the Apr. 23 issue of the journal *Nature*. All viruses co-opt parts of the cells they invade, but dengue virus is believed to require many such host factors because it has very little of its own genetic material, says Garcia-Blanco. Yet only a handful of mosquito or human dengue virus host factors have been identified to date, he adds, because researchers lack the tools for determining the functions of mosquito genes. To overcome this barrier, researchers turned to a familiar lab animal, the fruit fly. Mosquitoes and fruit flies (*Drosophila melanogaster*) are closely related and researchers have multiple tools for determining *Drosophila* gene functions.—**compiled by Carla Garnett**

feedback

Have a question about some aspect of working at NIH? You can post anonymous queries at www.nih.gov/nihrecord/index.htm (click on the Feedback icon) and we'll try to provide answers.

Feedback: Every day, I walk to campus as I live about 10 minutes away. I consider this a healthy alternative to driving—both for me and the environment. Well, I used to think it was healthy. Every day since the Tobacco-Free Campus initiative, I have to run a gauntlet of smokers (sometimes 12 at a time) standing directly at the pedestrian entrances. I'm very frustrated as I strongly believe this is a violation of my human rights. These people are choosing to smoke—I have no such choice. I have to pass through clouds of smoke. Even if you try to avoid them and go through the vehicular entrance/exit, the NIH Police drag you back and tell you to go through the card readers. As NCI says, "There are no acceptable levels of second hand smoke"—so why isn't NIH protecting its nonsmokers? I cannot enter or leave campus without exposure to second-hand smoke. I feel this tobacco-free initiative strives to make smokers healthier at the expense of nonsmokers. It used to be that people couldn't smoke within 25 feet of campus buildings—why not make them stand 25 feet from the pedestrian portals? Can't anyone help us non-smokers (wait a minute…given our daily exposure should we now be classified as smokers?)

Answer from the Office of Research Services: During development of the NIH Tobacco-Free policy, there was extensive discussion about what constitutes the NIH Bethesda campus. Senior management made the final decision that, for the purposes of this policy, the perimeter fence would be the campus boundary. When the policy went into effect last October, we received several comments/complaints about smokers standing outside the pedestrian portals. These comments were mainly about the litter but some included concerns about exposure to second-hand smoke by individuals using the portals. To address these concerns, we arranged, through the Office of Research Facilities, to have these areas cleaned on a regular basis and to place one or more butt cans outside each of the portals. To the extent possible, we located the butt cans away from the immediate entrances. This is a delicate balancing act since placing them too far away from the portals would limit their use. Since these actions were implemented, the number of comments about these issues has dropped dramatically. We encourage all individuals using the pedestrian portals to exercise common courtesy towards others by not blocking or smoking near these entrances.

Feedback: What is the status of A-76 efforts at NIH? Now that we have a new president, is the old president's management agenda defunct? Did anyone ever come to any conclusions about the effectiveness of so-called consolidation measures, besides harming employee morale?

Answer from the NIH Deputy Director for Management: According to the 2009 Omnibus Appropriations Act, NIH cannot perform new A-76 (outsourcing) studies during FY 2009. NIH will continue to fulfill legal requirements associated with the A-76 program, which include the preparation of the annual FAIR Act Inventory and the performance of post-competition accountability activities for the 38 completed studies. NIH is awaiting further guidance from OMB and HHS regarding the future direction of the A-76 Program and will inform the NIH community when information is available.

NIH'ers Reach Out at High School's Career Day

On Apr. 24, NIH'ers pitched in to talk to teens at Laurel High School's annual Career Day.

Don Bordine, associate director of operations for the Office of Animal Care and Use, has participated in the event for several years. A member of the NIH Speakers Bureau, Bordine said he enjoys "explaining the virtues and benefits of federal employment, especially at the NIH."

"The students really enjoy this event," said Michelle McQuillan, a Laurel High School English teacher and Career Day co-chair. "They look forward to it; they get all dressed up."

Although NLM associate fellow Paula Maez is new to NIH, "it was great to participate," she said. "It was a fun way to share information about my fellowship and the profession of health sciences librarianship with the students."

PHOTOS: BELLE WARING

NIH'ers Don Bordine (top) and Paula Maez visited Laurel High School recently to discuss careers.

10th Brain Awareness Week Hits Big With Kids

By Kevin Lyn Sisson

Have you ever wondered how many hours a day your cat sleeps—or an elephant, guppy or bat? NIH'ers committed to bringing the magic of neuroscience to the middle school universe presented these and other brain-processing challenges to students during NIH's Brain Awareness Week (BAW).

Groups of 5th, 6th, 7th and 8th graders from five area schools recently gathered at the National Museum of Health and Medicine at Walter Reed Army Medical Center for the 10th annual celebration of the week. Participating this year were the National Institute of Mental Health, which was the lead institute this year, the National Institute of Alcohol Abuse and Alcoholism, the National Institute on Drug Abuse, the National Institute on Aging and the National Institute of Neurological Disorders and Stroke.

Students spent the day visiting interactive scientific demonstrations developed by enthusiastic scientists. At the NIMH exhibit, kids were presented with a variety of optical illusions; the youngsters were quick to discern the images were something other than what they seemed at first glance. The young audience quickly identified the tricks behind architectural renderings with pillars in the wrong place and repeat images that appeared to be moving when actually still.

At the NIDA derby, students got to flex their mental muscles by squaring off in a quiz show format to provide quick responses to computer-generated questions about the effects of drug abuse on the brain and body.

NIAAA's Dr. Dennis Twombly, who has been involved in the celebration week since its inception, designed his exhibit to lure students into an eerily lit tent where the centerpiece was a 4-foot, lit-up version of the "Drunken Brain." With the gigantic brain blinking wildly as a backdrop, Twombly explained how and why alcohol interferes with sensory perception, movement, balance and memory. To further emphasize the effects of alcohol on the brain, he aired a short video featuring a drunken rat trying to remember the location of a hidden platform.

Archie Fobbs, neuroanatomical collections manager for the National Museum of Health and Medicine, distributed frosted goggles that simulated alcohol's ability to distort vision and hinder reaction time. He then challenged the students to attempt to touch a moving beam of light while wearing the glasses. The feat proved impossible, due to the distortion from the glasses. Darnea Sayles, who got to wear the glasses and attempted to catch the beam, said, "I see it but it's not doing what I told it to do!" Fobbs was met with squeals of horror and delight when he capped off his show by passing around a 64-year-old brain that has been preserved for 8 years.

Not only did the students enjoy the lighthearted side of learning about the brain, but also they had the opportunity to question the NIH scientists. Whether or not neuroscience is in the kids' future, this was an opportunity to have a dialogue with working scientists.

As the students boarded the bus, one was overheard saying, "Wow. Scientists get to play with cool toys. I want to be a scientist." And in case you're wondering, Dr. Jennifer Mehren of NINDS told the kids their cat sleeps 12 hours a day, an elephant sleeps 3.3 hours, a guppy sleeps 7 hours and a bat clocks in at 19.9 hours, upside down.

BAW is an annual international partnership of government agencies, scientific organizations and university and volunteer groups organized by the Dana Alliance for Brain Initiatives, a nonprofit organization of more than 200 neuroscientists dedicated to advancing education about the brain.

***Top** (from l):*
Dr. Dennis Twombly of NIAAA shows kids the "Drunken Brain" tent.

A middle-school student chases a beam of light while wearing distorting goggles during Brain Awareness Week.

***Below**:*
A middle-school student holds the preserved brain of a 64-year-old.

***Bottom**:*
Candace Corbin, NIMH research assistant, explains optical illusions.

PHOTOS: BILL BRANSON